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Titel des Beitrags: Ketamine-Xylazine Anesthesia in Rats: Intraperitoneal versus Intravenous Administration Using a Microsurgical Femoral Vein Access.

Abstract: Background Ketamine-xylazine is a frequently used combination for anesthesia in microsurgically operated rats and can be administered by intraperitoneal (IP) or intravenous (IV) injection. Both methods are associated with relatively high misadministration rates. In the present study, we want to introduce a femoral vein access that requires microsurgical cannulation but enables a 100% administration rate. Methods In this study, the maximal time of anesthesia was analyzed, time to response, latency time, and the total need for anesthetic agents in IP (n = 200) and IV (n = 40) anesthesia in Wistar rats for the purpose of microvascular operations. IV injections were achieved with an inserted microcatheter that was applied via a microsurgical femoral vein access. Results The time needed for the placement of the microcatheter was 5.76 ± 0.89 minutes. Maximal time of anesthesia (IP vs. IV) was 7.02 ± 1.92 versus 21.78 ± 5.77 hours (p< 0.0001), time to response was 137.5 ± 43.91 versus 18 ± 2.18 seconds (p< 0.0001), latency time 35.53 ± 3.21 versus 27.8 ± 2.88 minutes (p< 0.0001), and total volume of anesthetic 1.42 ± 0.39 versus 2.78 ± 0.73 mL (p< 0.0001), respectively. Conclusion IV administration using the microsurgical femoral vein access is a feasible method with a quicker response rate and a 100% administration rate. Furthermore, it
enables longer anesthesia, for example, complex microsurgical or other experimental procedures in
the rat.

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